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Case Report

Never reported complication of open right hemicolectomy-right external iliac artery pseudoaneurysm with arterio colonic fistulae presenting as delayed postoperative anastomotic bleeding: a case report and review of literature

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ABSTRACT

Anastomotic bleeding is well known complication after gastrointestinal resection and anastomosis procedures. The percentage of patients experiencing this complication is between 0.5% to 9.6%. Delayed postoperative anastomotic bleeding is even more rare, herein, we report a case of pseudoaneurysm of right external iliac artery with arterio-colonic fistulae in a patient who underwent open right hemicolectomy and presented as delayed postoperative anastomotic bleeding-a complication never reported before related to this procedure.

Keywords: Anastomosis, Bleeding, Iatrogenic fistulae, Stent graft

INTRODUCTION

The terms pseudoaneurysm, false aneurysm and pulsating haematoma all describe the same phenomenon, that is a defect in the vascular wall leading to an extra-vascular haematoma that freely communicates with the intravascular space.[1] Pseudoaneurysms are a result of damage to the vascular wall due to factors such as trauma, tumor, infection, vasculitis, atherosclerosis, or iatrogenic injury.[2] Once in its fully developed state, it may have a cavity with an endothelial lining in continuity with that of the artery.[3] Iatrogenic Contributing factors related to pseudoaneurysm include vascular erosion secondary to clip encroachment, direct lesion of the vascular wall during surgery and electric current diffusion through clips placed in close proximity to the vascular pedicle.[4] Here we present an unusual case of massive per-rectal bleeding, in a patient who underwent open right hemicolectomy a month before and was found to have pseudoaneurysm of the external iliac artery associated with arterio-colonic fistula.

CASE REPORT

A 70-year-old Caucasian female presented to our acute Surgical take with a history of passing bright red blood with her bowel motion since last 2 days. She was discharged 4 weeks ago after undergoing Open right hemicolectomy for T3 N1 M0 ascending colon tumour. Her comorbidities comprised of asthma, COPD, previous LSCS×2, previous laparotomy for hysterectomy and high BM1 of 46.

On admission her Pulse was 106 beats per minute and blood pressure was 94/58 mm of Hg. The blood results on arrival were Hb: 97; WBC: 13.97; CRP:50. The patient was provisionally diagnosed with delayed anastomotic bleed and was admitted for further

management. Resuscitation was commenced with 2 units of packed red blood cells and tranexamic acid was given as per guidelines. A further massive per-rectal bleed was reported on the ward that evening, with a subsequent drop in haemoglobin to 68. Further blood transfusion was given, and an urgent CT angiogram was arranged.

An arterial phase CT abdomen with IV contrast was performed. CT angiogram showed pseudo-aneurysm bulging from the anterior wall of the proximal aspect of the right external iliac artery with a surrounding haematoma. The pseudo-aneurysm showed more obvious active bleeding into an aneurysmal sac measuring 6.9×4.2×5.1 cm. This haematoma extended just below the ileotransverse anastomosis and showed a mild diffuse right retroperitoneal haematoma along the right posterior parietal peritoneum-CT angio (Figures 1 and 2).

Figure 1: CT angio of pseudoaneurysm EIA.

Figure 2: CT of haematoma adjacent to stapled anastomosis.

In view of the CT Angio findings an urgent vascular surgery and interventional radiology consult was sought. An urgent Angiography was planned. Vascular access was challenging due to high BMI, so left Common Femoral Artery (CFA) retrograde access was achieved using Ultrasound Guidance. Angiography showed defect in the right mid external iliac artery with adjacent pseudoaneurysm. It was stented using 8×5 cm Viabahn covered stent. Since then, no further episodes of per-rectal bleeding have been reported but she is receiving antibiotics to prevent any graft infection. Then a follow up CT angiogram was done a month after stent insertion which showed good radiological outcome with patent right external iliac stent and resolving haematoma in the right iliac fossa- CT angio (Figures 3 and 4).

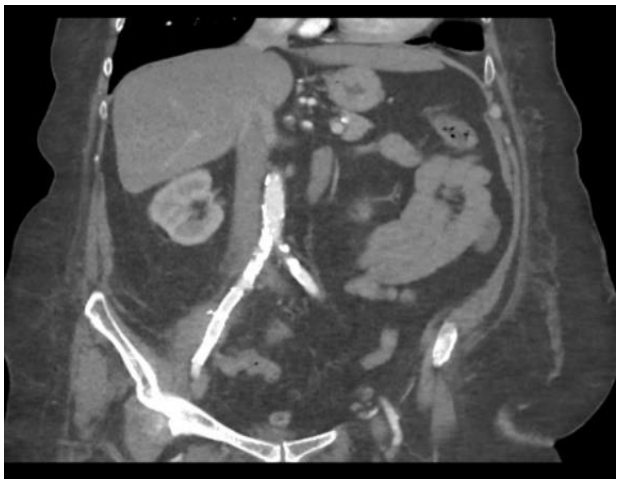

Figure 3: Follow up CT angio of stent *in situ.*

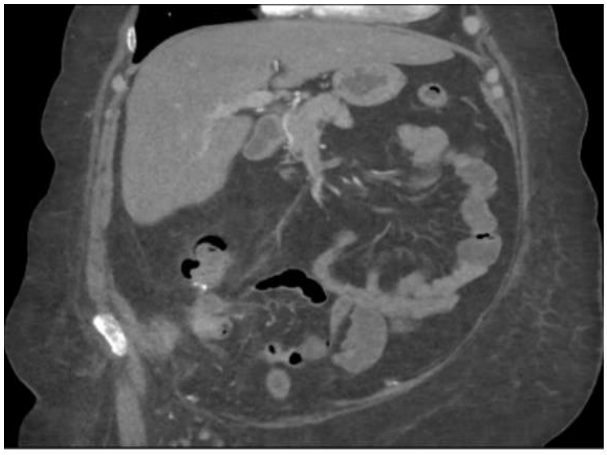

Figure 4: Follow up CT angio of regression of haematoma.

DISCUSSION

A pseudoaneurysm refers to a defect in an arterial wall, which allows communication of arterial blood with the adjacent extra-luminal space. Blood extravasates out of the artery, but is contained by surrounding soft tissue and compressed thrombus which form a cavity or sac.[5] There is often a narrow tract stemming from the arterial wall to the pseudoaneurysm sac, termed the 'neck'. A

pseudoaneurysm is distinct from a 'true' aneurysm, which results from dilation of all layers of the arterial wall.

Anastomotic bleeding is one of the most dangerous postoperative complications of colorectal cancer, and its incidence is reported in the literature as 0.5%-9.6%.[6-8] Postoperative anastomotic bleeding usually occurs within 24 hours after the operation.[9] The early postoperative anastomotic bleeding is mainly related to insufficient haemostasis during the operation and postoperative circulation fluctuation.[10] The haemorrhage that developed more than 24 hours after surgery was considered as delayed bleeding.[11]

The mechanism involving the formation of a pseudoaneurysm following infection remains unknown. Itatani et al reported that bacteria tend to adhere to the injured arterial intima leading to infectious vasculitis, which precipitates collapse of the arterial wall, and subsequent pseudoaneurysm formation.[12]

Diathermy is commonly used in modern-day surgery. The incidence of electrosurgical injuries related to diathermy is under reported, as it is difficult to ascertain the true impact on both patient and healthcare professionals. Principles of electrosurgery must be thoroughly understood by all operating room personnel. This forms the basis for patient safety and helps in early recognition of possible complications.[13] Most electrothermal injuries to the bowel (approximately 75%) are unrecognized at the time of occurrence.[14] The time delay from burn to perforation would appear to be related to the severity of the coagulation necrosis.[15] Features of electrical injuries are distinguished by an area of coagulative necrosis, absence of capillary ingrowth of fibroblastic muscle coat reconstruction, and absence of white cell infiltration, except in focal areas at the viable borders of injury.[16,17]

Contrast-enhanced helical CT angiography has been reported as a convenient imaging modality in the detection of neck, chest, abdomen, pelvis and extremity pseudoaneurysms.[18] Standard surgical treatment for infected pseudoaneurysms comprises radical excision and debridement with an anatomical or non-anatomical bypass. However, the procedure could be extremely challenging depending upon the extent of the damage that the infection has inflicted on the arterial wall.

Endovascular intervention using a covered stent can achieve more rapid control of bleeding than surgical techniques.[19] Stent grafting is minimally invasive; however, the outcome is unproven in a setting of infected pseudoaneurysms. Moulakakis et al reported a systematic review analysis of the current literature describing the efficacy and outcome of endovascular treatment of infected iliofemoral arterial pseudoaneurysms using covered stents [20]. Their review, with a mean follow-up of 15.8 months demonstrated a low re-infection rate (3.4%) and a high graft-patency rate (90%). Because the long-term outcome is unknown, the risk-benefit ratio ought to be carefully considered prior to using stent grafts for infected pseudoaneurysms.

CONCLUSION

Pseudoaneurysm of right external iliac artery with arterio-colonic fistulae after open right hemicolectomy, presenting as delayed postoperative anastomotic bleeding, has never been reported in literature. CT angiography can enable the diagnosis and treatment of ruptured pseudoaneurysm in a single session. The procedure is safe, the re-bleeding rate is low, and it is as effective as alternative treatments. It should not be considered in infected pseudoaneurysms where radical excision with anatomical or non-anatomical bypass should be the option of choice subject to fitness of patient.

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